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Technical committee D2a – WG 2 Maintenance Methods and Strategies

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Goals

- **Performance of improved maintenance methods**
 - Undertake an analysis of the performance of improved **maintenance methods** including surface maintenance and structural rehabilitation of different types of pavements.

- **Maintenance strategies**
 - Consider the changes to **maintenance strategies** that have been adopted by road administrations and how these will change future maintenance of pavements



Methodology

➤ Surveys

- Survey of improved maintenance methods for flexible and semi-rigid pavements
 - 16 answers
- Survey of maintenance strategies
 - 18 answers



Surveys

1. Survey on **maintenance methods**

➤ Inventory of the methods*

- Durability, cost and construction time
- Efficiency (Effect on performance indicators)

* Surface and structural treatments

* Rigid pavements will be treated in a separate report (S.Holler)



surveys

2. Surveys on maintenance strategies

- Existing Strategies
 - Description
 - Used Indicators (Roughness, rut depth, etc.)
 - Modifications in time

- Contract management
 - Day to day operations
 - Long term maintenance



Conclusions

➤ Maintenance methods

- There are differences on the durability for the same maintenance method from one country to another
 - Preparatory works, quality of aggregate, traffic, etc. can explain those differences
- What in one country can be considered as an improved method can in another country be a well established method.



Conclusions

➤ Maintenance methods

- The analysis of maintenance effectiveness is very dependent on quality of available data. So we were able to analyze the:
 - Durability of the maintenance method by traffic classes
 - Impact of maintenance method on the management indicators
- It should be noted that analysis was limited due to the quality of available data and access to relevant information.



Conclusions

➤ **Maintenance Strategies (contract)**

- When an agency outsources its major maintenance, they generally use turnkey contracts
- They can reach up to 30 years and are including performance clauses
- Require highly qualified resources to manage it

➤ **Strategy changes over time**

- Need accurate and reliable data (good quality plan)
- A refresh rate of at least 2 years is mostly used



Conclusion et recommandations

➤ Strategy changes over time

- The strategy must be dynamic
 - Taking into account of new indicators as they become available, political environment changes, etc.
 - Frequent review of the objectives
- Usage of network level scenarios provide a method for optimizing maintenance investments in order to derive maximum benefits from the maintenance of the road network



Cases study

1. UPlANS: The maintenance strategy of the Swiss Federal Roads Office, ASTRA for the national motorways (Swiss)
2. Changes in maintenance strategy over time (Quebec-Canada)
3. Strengthening of low-volume roads by use of unbound recycled asphalt aggregate and surface dressing (Norway)
4. Surface dressing (Sweden)
5. Analysis of Maintenance effectiveness (Sweden)



Technical presentation

1. 10 years of concrete pavement maintenance innovation to extend service life
 - Mr. David HEIN, Applied Research Associates, Canada
2. Methodology for determining strategies for pavement
 - Mr. Francisco Javier. MORENO, Alta Tecnología en Ingeniería de Pavimentos y Seguridad, México
3. Presentation of the German manual for repair of concrete pavements
 - Mr. S. HÖLLER, Bundesanstalt für Straßenwesen, Germany

